COLONY OF SINGAPORE

INSTITUTE
19 FEB 1952

BOTANIC GARDENS DEPARTMENT ANNUAL REPORT FOR 1950

18 FEB 1952

PRINTED AT THE GOVERNMENT PRINTING OFFICE, SINGAPORE,
BY V. C. G. GATRELL, GOVERNMENT PRINTER

—

To be purchased from GOVERNMENT PUBLICATIONS BUREAU,
GENERAL POST OFFICE, FULLERTON BUILDING, SINGAPORE

—

1951

Price: 50 *cents*

COLONY OF SINGAPORE

BOTANIC GARDENS DEPARTMENT ANNUAL REPORT FOR 1950

BY

M. R. HENDERSON,

Director, Botanical Gardens, Singapore

PRINTED AT THE GOVERNMENT PRINTING OFFICE, SINGAPORE,
BY V. C. G. GATRELL, GOVERNMENT PRINTER

1951

Digitized by the Internet Archive
in 2025

https://archive.org/details/annual-report-botanic-gardens-singapore_1950

ANNUAL REPORT OF THE BOTANIC GARDENS DEPARTMENT

Staff

Mr. M. R. Henderson was appointed Director with effect from September 1949. The vacant post of Assistant Director was not filled and Mr. J. Sinclair, Curator of the Herbarium, acted in this capacity in addition to his own duties throughout the year. Mr. J. W. Ewart acted as Agricultural Officer, Singapore, in addition to his own duties as Assistant Curator, Gardens. Mr. G. H. Addison proceeded on vacation leave in November. Mr. J. L. Pestana, Laboratory Assistant, was sent to Honolulu on a four months' training course in orchid hybridisation. Mr. G. A. C. Lopez was appointed Library Assistant in November.

The average daily attendance of the labour force was seventy-five in the Gardens, fifty-eight in Government House Domain and nine in the Reserves. In general their health was good. The majority of the Gardens labourers are housed in Gardens quarters.

Botanical Work in 1950

As in 1949, field work outside Singapore was much reduced owing to the emergency. Mr. M. R. Henderson paid a short visit to Kota Belud in North Borneo in April to collect in that vicinity. A fine Gardenia (*G. Merrillii*) was found to be common in this area and seed of it was brought back to Singapore for trial in local gardens. Mr. J. Sinclair accompanied the Forest Botanist, Mr. J. Wyatt-Smith, in September on a short collecting trip to the Gunong Lambak Forest Reserve at Kluang and the Ma'Okil Forest Reserve near Labis. He also spent two weeks in Penang during November and thanks are due to Mr. Ritchings and the staff of the Waterfall Gardens, Penang for providing transport and other help. Mr. Sinclair continued his intensive collecting in Singapore, particularly on the islands off the south-west coast. As a result of these visits thirteen plants new to Singapore were recorded. One of these is *Cordia obcordata*, a tree with handsome red flowers which has been found previously at Mersing and in Penang and Kedah. Other new records are of four grasses new to Malaya, one of which, collected on Pulau Sakeng, has been recorded previously only from New Guinea.

Mr. Sinclair completed a short paper on Bornean Annonaceæ for the *Sarawak Museum Journal*, and continued his studies on Malayan Annonaceæ.

Dr. C. X. Furtado, Assistant Botanist, was engaged upon a revision of *Dæmonorops*, a genus of climbing palms of peculiar difficulty, in which the older species are often inadequately described, and the type specimens, when available, insufficient, so that their interpretation entails much research. Dr. Furtado also determined palm specimens in pre-war collections that still remained unnamed. He supervised work in the library and extracted and indexed references to Malayan systematic and economic botany contained in foreign periodicals.

Part 1 of Volume XIII of the *Gardens' Bulletin*, Singapore was published in June, the whole of the issue being given to a most important revision, illustrated by line drawings, of Malayan Zingiberaceæ (Gingers), written by Professor R. E. Holttum. The second part of *Malayan Wild Flowers*, by Mr. M. R. Henderson, published by the Malayan Nature Society, appeared at the end of the year. Mr. M. R. Henderson and Mr. G. H. Addison published descriptions and illustrations

of new orchid hybrids in the *Malayan Orchid Review* Vol. 4, No. 2. The third in the series *Malayan Gardens Plants*, containing line drawings and brief descriptions of ten orchids, was published.

The Herbarium

The number of herbarium duplicates despatched to other Botanical Institutions increased as compared with 1949, and in all 1,980 were distributed. Much material was sent on loan, chiefly to specialists working on various groups for Flora Malesiana, 2,478 sheets being sent out, as well as a large collection of figs in alcohol.

The Herbarium received in exchange from various overseas institutions 2,345 sheets of duplicates, much valuable material being acquired, as in past years, from the Forest Department, North Borneo. 3,510 sheets were mounted and incorporated in the Herbarium.

All dried material for the Herbarium, and all duplicate material sent out, is thoroughly poisoned to prevent insect attack, especially the ravages of the so-called 'herbarium beetle', which can cause great damage if not checked. The poisoning is done by immersing the specimens in an alcoholic solution of corrosive sublimate. The Singapore Herbarium is housed in well-made teak cases which are in themselves good protection against insects and damp. Because the Herbarium is in constant use any deterioration is quickly detected. As a precaution against insect attack, which, fortunately, has always been almost non-existent, the cases are opened and sprayed at regular intervals with a Gammexane insecticide.

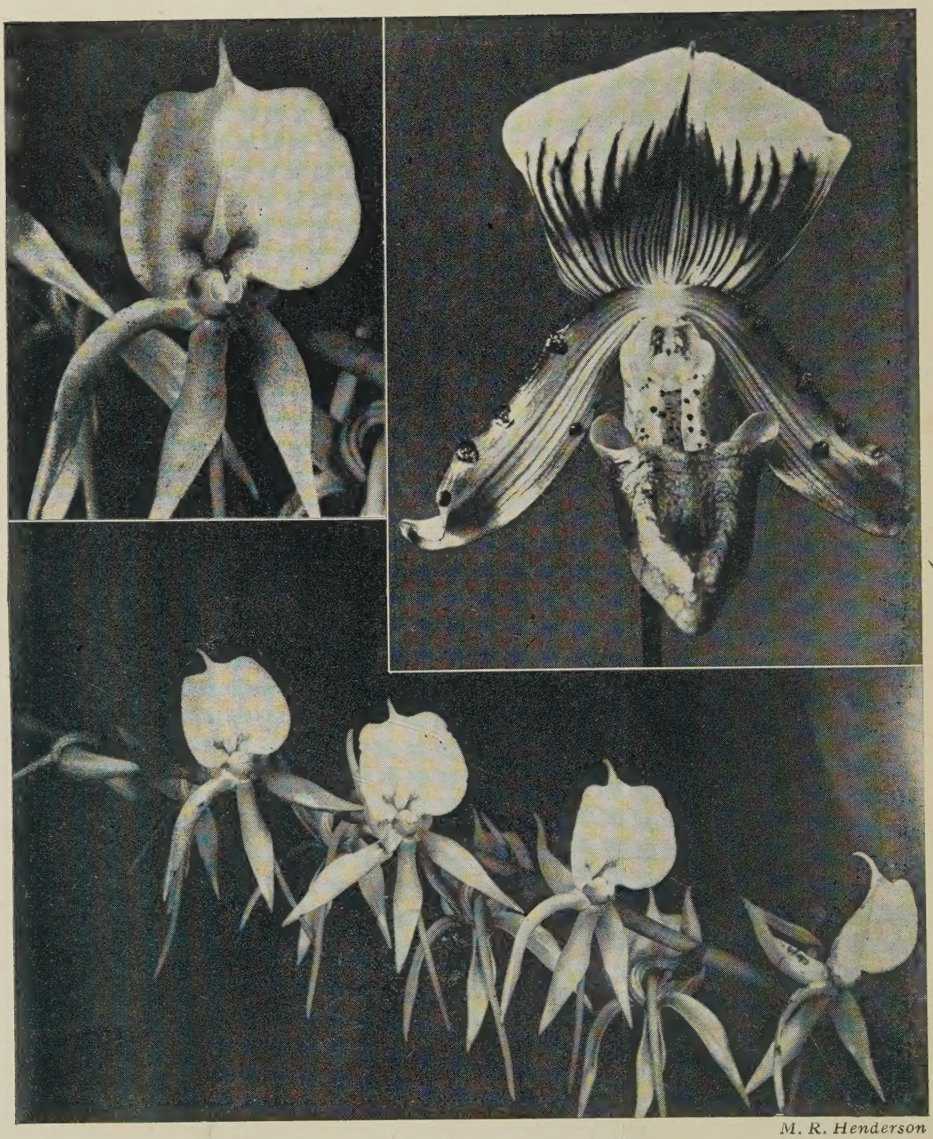
One little known activity of the Department, in which the Herbarium plays a large part, is the identification of plant material for private individuals or for other Government Departments, apart from the routine identification of specimens for the Agricultural and Forest Departments of the Federation, Sarawak and North Borneo, who maintain their own collections and donate duplicates in return for such identifications. Plants suspected of being injurious or toxic are received from the Department of Chemistry; botany students from the University of Malaya or from the local schools bring their collections to be named; people interested in local herbal medicines bring exceedingly fragmentary material to be identified; the Department of Agriculture in Fiji requests information on Chinese drugs imported into that country in order to discover whether any of them may be noxious weeds, and so on. A specimen of a stem was sent from Kuala Lumpur which had been collected in Kedah with an extraordinary recipe for longevity. This was to eat one inch of the stem, which is woody and very bitter, the first day, two inches the second, and so on for forty days.

Horticultural Work

The Gardens continued to be maintained in good order. Their good appearance is due in considerable measure to the efficient working of the three Dennis 24-inch motor mowers, which keep the extensive lawns neatly cut and obviate the necessity of a large labour force employed solely on grass cutting by primitive means. But horticultural work can be mechanised only to a limited extent, and there is more than enough work in the digging of beds and borders, planting, manuring, spraying, propagating, potting and repotting, and the hundred and one other matters that need constant attention, especially in a climate where growth is continuous throughout the year, to keep fully employed the whole of the labour force.

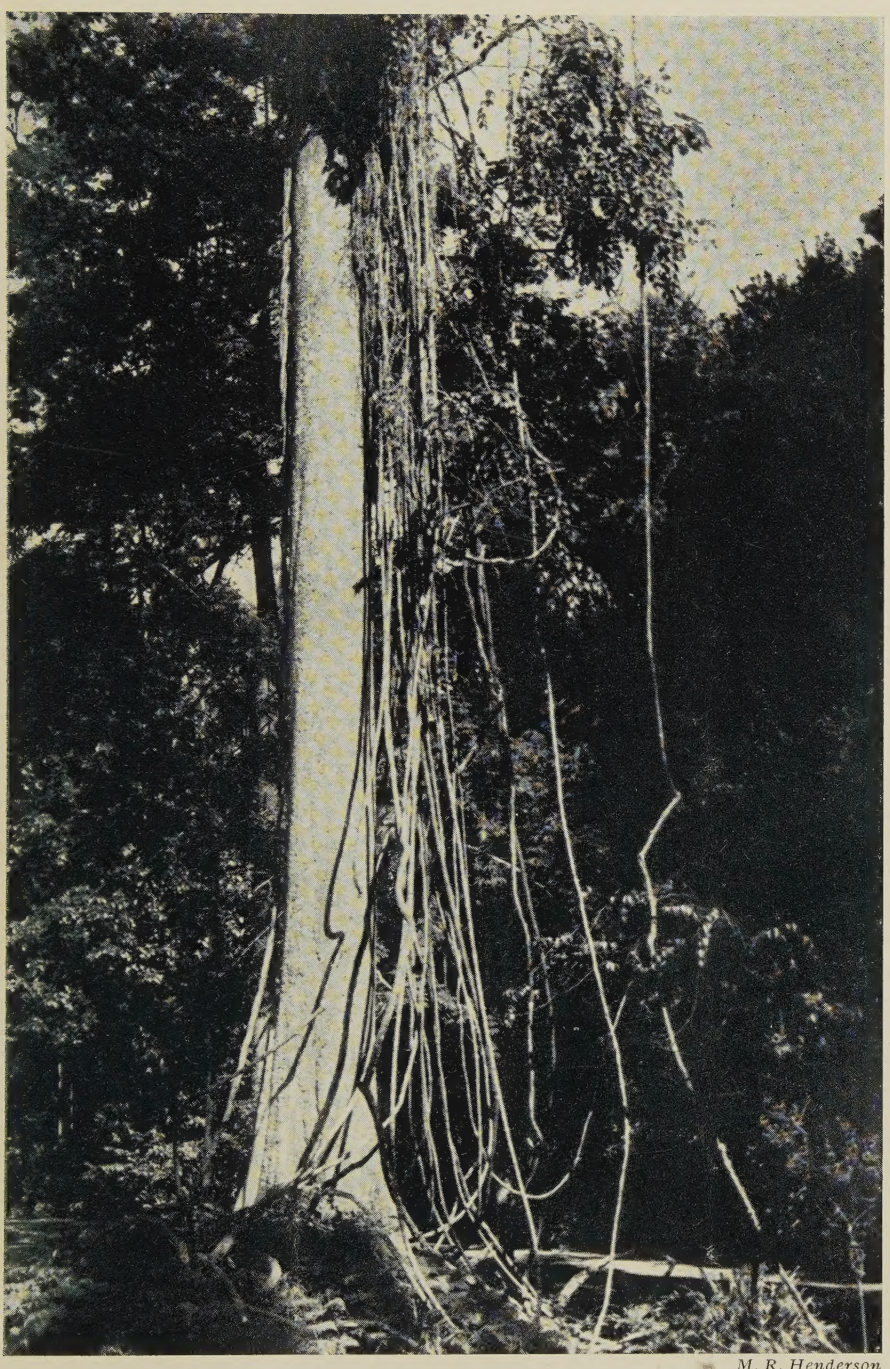
M. R. Henderson

Above: A hybrid Cattleya (*C. Sylvia*). Below: A hybrid Dendrobium (*D. Caesar*).



M. R. Henderson

Below and above on the left: the flower spike and a single flower of *Angraecum eburneum*, an orchid from Madagascar. On the right: one of the Slipper Orchids—*Cypripedium callosum*.



M. R. Henderson

The trunk of a large kempas tree (*Koompassia malaccensis*) near the Bandstand, with large, woody climbers hanging from its crown.

M. R. Henderson

Above: 'Angels' Trumpets'—*Randia macrantha.* an African plant. Below: Rangoon Creeper, sometimes called Drunken Sailor—*Quisqualis indica.*

Roads, Paths and Drains

The Public Works Department resurfaced Office Gate Road and built up the drains along each side. They also made up and tar-sealed the Lake-side Path and the path from Office Gate to Office Ring Road and made up and surfaced with laterite several other paths. A new path was made from Tyersall Gate to the Lake-side Path through Lawn G. One path on Lawn D and two on Lawn P were done away with, the levelling and turfing being undertaken by the Gardens labour force. The mason did a considerable amount of rebuilding and repairing of roadside drains. The P.W.D. filled in a number of silt pits that were found to be breeding mosquitoes.

New Borders and Beds, and New Plantings

A new border encircling the Bandstand was planted with a collection of *Lantana camara* varieties. Another new border was made at the top of the bank on Lawn O and planted with a mixed collection of flowering shrubs, and on the same lawn new beds were made to take several kinds of bulbous plants.

It is intended to form a collection of all the trees used as street trees in Singapore. This collection will, of course, be labelled, and visitors may readily learn the names of any roadside trees in which they are interested. The trees will be sited along Office Ring Road, and ten species have already been planted.

Several changes were made on the Bandstand Hill to endeavour to produce a more colourful display. *Lobelia dresdenensis*, usually grown as a pot plant, was used very successfully as a bedding plant, being readily propagated both by seed and by division.

The Canna beds along Main Gate Road were lifted in mid-February and replanted in March. The width of the beds was increased to six feet, which is considered the minimum for three rows of Canna plants. In April the disease which completely destroyed the Cannas during the Japanese occupation reappeared, but was successfully controlled by spraying with Peronox three times a week for three weeks and thereafter once a week for a month. In spite of this attack, the Cannas made a good display throughout the year.

A considerable amount of work was done on the boundary of Lawn Z, where the hedge had been invaded by tree seedlings and other unwanted plants. The whole of the old hedge was removed and a new one of *Baphia nitida* planted, with oil palms at the Palm Valley end.

An avenue of Royal Palms (*Oreodoxa*) was planted along Office Gate Road in Lawn K. These were all about $1\frac{1}{2}$ feet tall when put out in February. By the end of the year most of them were over 8 feet.

The Lake

The water-lilies flowered well during the year. The upper end of the lake was weeded and the lilies thinned out. Towards the end of the year, one of the several water weeds, *Hydrilla ovalifolia*, appeared to be growing more strongly than usual. In an attempt to control it arrangements have been made to introduce the Gouramy or Kalui (*Osphromenus gourami*), a fish which is said to have been successful in keeping down this plant in Colombo.

Orchids and Succulents

A small part of Lawn X, near the Director's Quarters, has been fenced off and is now being used for all orchid propagation, the raising of succulents, and the preliminary stages of all new introductions. This site is more open and more

suitable for the purpose than the Potting Yard, which is now used for the propagation of those plants which are available for sale to the public and for the supply of foliage and other plants for the Plant House.

Three new houses were built on the Lawn X site during the year. One is a potting shed with corrugated iron roof and brick bins for soil, compost, manure, etc. Of the other two one is roofed with corrugated aluminium sheet, with Perspex lights, and is used solely for new introductions or for propagating plants already in the collections which it is desired to remove to another situation. The other has a glass roof composed of units resembling large cloches, with external blinds of split bamboo for shade when necessary. This house has proved very suitable for the intermediate stages in growing orchid hybrid seedlings and there is some indication that it may help in the problem of growing delicate exotic orchids which dislike the wet Singapore climate. It has also proved suitable for succulents.

More orchid beds were constructed during the year and the old ones given fresh dressings of compost and manure. It is evident that these well-drained beds are at their best in wet weather, when the compost is maintained in a continually moist condition, without, however, becoming sodden or water-logged. During any spell of dry weather the compost tends to become dry and powdery and in this condition is very difficult to moisten. The remedy is, obviously, to have sprinklers working whenever rainfall is lacking, but at the moment the water supply is insufficient in quantity and pressure.

Orchid hybridisation work continues to be pursued with vigour. In order to take advantage of the most up-to-date technique, Mr. J. L. Pestana, Laboratory Assistant, was sent on a four months' course to Honolulu, to study methods used by the large scale commercial growers there, with a view to adapting them to local conditions.

The new orchid hybrids flowered during the year were described and figured in the 1950 issue of the *Malayan Orchid Review*. A noteworthy one was an *Arachnopsis*, which is the second of the bigeneric hybrids between Arachnis and Phalænopsis to be recorded. It was named after Professor R. E. Holttum. The Vanda hybrid mentioned in the 1949 report as an attempted improvement on *Vanda Miss Joaquim* has done well during the year in a bed. It has been christened *Vanda Prolific*.

The large number of orchid hybrids being handled necessitates somewhat elaborate records. A new card index, having three cards for each hybrid, has been begun to keep track of each at all stages of its career. Full descriptions are made of each new hybrid that flowers and accurate coloured drawings made by the artist.

The Botanic Gardens has acquired, over many years, by exchange, or by gift, or collected by the members of the Department, many orchids both of local and of exotic origin which are usually of more interest to the botanist than to the orchid fancier. A collection of small local orchids is maintained in the Plant House, where their diversity of form, habit and flower may be studied. Two exotic orchids, which have been in the collections for many years without flowering, decided, for some unknown reason, to do so this year. One is *Megaclinium purpureorachis*, a native of the Congo, which, like its name, is more curious than beautiful. The other is *Angrœcum eburneum* from Madagascar, which has a spike of large, long lasting, white and green flowers.

Although the main interest of orchid growers in Singapore, both amateur and professional, is in the cultivated kinds, several upcountry collectors study native species and not infrequently make discoveries of new species or of species not

yet recorded from Malaya. A case in point is the discovery by Mr. H. J. Vallender in Negri Sembilan of *Eulophia bicarinata*, which, although it is widely distributed from India to Australia, has never before been recorded from Malaya. In spite of its wide distribution not much is known about it and up to the present no botanist has described its leaves. The living plants sent by Mr. Vallender will enable a detailed study to be made.

The collection of succulents was maintained and increased by many acquisitions. Amongst the South African Mesembrianthemums four species of *Glottiphyllum* flowered, as well as two of *Faucaria* and one each of *Bergeranthus*, *Gibbœum* and *Homalium*. *Stapelia Desmetiana*, a South African desert plant, flowered once.

The Sun Rockery on Lawn X, which had become overcrowded and overgrown, was cleaned, weeded and partially remodelled, and a considerable number of succulents such as *Agave*, *Alœ*, *Cereus* and *Opuntia* planted out.

Plant Introduction Section

The banana collection on Lawn R was transferred to Lawn Y. On the area thus left vacant a start was made to develop a plant introduction section where it is intended to bring to the flowering stage all new introductions suitable for outdoor cultivation, except large shrubs and trees. Thirty-five beds, each 12 feet by 3 feet, were made, separated by grass paths, and these will be extended as labour is available. Hedges of Madras Thorn (*Pithecellobium dulce*) and of *Randia spinosa* have been planted to enclose the area.

Nursery

This area is now stocked with sufficient material to meet the requirements of the Gardens, Government House Domain, plant exchanges and plant sales.

Plant Sales

Revenue from the sale of orchid plants was $3,999 and from the sale of other plants, $7,626, a total of $11,625.

Composting

The life blood of any garden in Malaya is manure and compost. Large quantities are needed in the low-fertility, stiff clay of the Gardens and because of the rapidity with which it disappears from the soil in tropical climates. Good supplies of cattle manure have been available from the Veterinary Department, and a cement floored, roofed shed was constructed on Lawn U, near the water tower, to house it. Compost was made in considerable quantities, from leaf sweepings, weeds, household refuse, etc., mixed with manure and spent hops from Malayan Breweries. Horse manure was obtained from the Singapore Polo Club. Trials have been begun of the composting of garden refuse with Adco, without admixture of animal manure.

Singapore Flower Show

An attractive large exhibit consisting mainly of orchids and *Saintpaullia ionanthe* (African Violet) was displayed in the centre of the hall at the Singapore Gardening Society's Annual Flower Show. Much of the success of the show was due to the arrangements of the exhibits by Mr. G. H. Addison, who was Honorary Show Manager.

Plants Inwards and Outwards

Some 536 packets of seeds and 338 plants were received in exchange. 195 packets of seed were purchased. 1,036 packets of seed were sent out in exchange as well as 492 plants. 1,621 plants were supplied to Government Departments and Charitable institutions. 23,419 plants were sold.

Government House Domain

The grounds of the Domain were kept in good condition throughout the year. Various rough areas were levelled and lallang and tree seedlings removed, so that they can be cut by the motor scythe. In particular, the old Malay cemetery, which had become overgrown and a breeding place for mosquitoes, absorbed a considerable amount of labour.

The beds and lawns in front of Government House were replanted and manured when necessary, the Canna beds being replanted twice. Two new orchid beds were made and planted with Singapore hybrids. The lily pond in the new garden was cleaned and the water plants manured regularly. The Hibiscus hedge near the centre gate was removed.

Pot plants in Government House were maintained at a high standard, and, as usual, changed twice a week. Some idea of the work entailed in the proper upkeep of the large number of pot plants required can be gathered from the fact that between 25 and 28 tons of burnt earth were made during the year, all of which is used in potting. To keep up an adequate supply of cut flowers, new nursery beds were made.

Two new hard tennis courts were constructed by the Public Works Department and to accommodate them a large Sentol tree, which, however, was in poor condition, had to be removed. An area adjoining the tennis courts was levelled and turfed and planted with Hibiscus, Acacia and Muntingia. Stigmaphyllon was planted round the fence of the tennis courts.

Several old and unsafe trees in various parts of the Domain were removed. Six Canarium trees were taken out of the back drive in order to make room for the Millettias which were planted there before the war.

Other Work outside Botanic Gardens

The Gardens staff gave advice on planting and layout of gardens to Government, Military and private establishments when asked to do so. Contact with the Municipal Parks Department was maintained and planting material exchanged with them.

Botanical Reserves

A police wireless station was constructed on the summit of Bukit Timah, but as this area was once the site of a house, there were no trees of value upon it and no interference with the native forest resulted. All the reserves were maintained satisfactorily. Thefts of timber were not serious.

1327—650—3/51